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primer, said extension products, after separation from their complement, serving as templates for the synthesis of an extension product from the other primer of each pair;

separating said extension products from said templates to produce single-stranded molecules;

amplifying said single stranded molecules by repeating, at least once, said annealing, extending and separating steps; and

identifying said amplified extension products from each different sequence.

2 (amended). The method of Claim 1 for detecting deletions [at a plurality of] from at least three genomic DNA sequences, wherein said sequences are selected from the group of known sequences on the X and Y chromosomes.

5 (amended). The method of Claim 4 for the detection of X-linked muscular dystrophy, wherein each pair of said [plurality of paired] at least three pairs of primers are complementary to different sequences within the gene coding for the dystrophin protein.

6 (amended). The method of Claim 5, wherein the [plurality of paired] at least three pairs of primers is selected from the group consisting of:

(1) 5'-GACTTTCGATGTTGAGATTACTTTCCC-3'

(2) 5'-AAGCTTGAGATGCTCTCACCTTTTCC-3',

(1) 5'-GTCCTTTACACACTTTACCTGTTGAG-3'

(2) 5'-GGCCTCATTCTCATGTTCTAATTAG-3',

(1) 5'-AAACATGGAACATCCTTGTGGGGAC-3'

(2) 5'-CATTCTATTAGATCTGTGCGCCCTAC-3',

(1) 5'-GATAGTGGGCTTTACTTACATCCTTC-3'

(2) 5'-GAAAGCACGCAACATAAGATACACCT-3',

(1) 5'-CTTGATCCATATGCTTTTACCTGCA-3'

(2) 5'-TCCATCACCCCTTCAGAACCTGATCT-3',

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incl.
- (1) 5'-~~GAATAC~~CATTGGTTAAATCCCAACATG-3'  
 (2) 5'-CCTGAATAAAGTCTTCCTTACCACAC-3', and  
 (1) 5'-TTCTACCACATCCCATTTTCTTCCA-3'  
 (2) 5'-GATGGCAAAAGTGTGAGAAAAAGTC-3'.

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8 (amended). The method of Claim 1 for detecting deletions [at a plurality of] from at least three genomic DNA sequences, wherein the [plurality of paired] at least three pairs of primers is selected from the group consisting of:

- (1) 5'-GACTTTCGATGTTGAGATTACTTTCCC-3'  
 (2) 5'-AAGCTTGAGATGCTCTCACCTTTTCC-3',

- (1) 5'-GTCCTTTACACACTTTACCTGTTGAG-3'  
 (2) 5'-GGCCTCATTCTCATGTTCTAATTAG-3',

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(1) 5'-AAACATGGAACATCCTTGTGGGGAC-3'  
 (2) 5'-CATTCTATTAGATCTGTCGCCCTAC-3',

- (1) 5'-GATAGTGGGCTTTACTTACATCCTTC-3'  
 (2) 5'-GAAAGCACGCAACATAAGATACACCT-3',

- (1) 5'-CTTGATCCATATGCTTTTACCTGCA-3'  
 (2) 5'-TCCATCACCCCTTCAGAACCTGATCT-3',

- TTGAATAC  
 (1) 5'-~~GAATAC~~CATTGGTTAAATCCCAACATG-3'  
 (2) 5'-CCTGAATAAAGTCTTCCTTACCACAC-3',

- (1) 5'-TTCTACCACATCCCATTTTCTTCCA-3'  
 (2) 5'-GATGGCAAAAGTGTGAGAAAAAGTC-3',

- (1) 5'-TGGTCTCCTTAAACCTGTCTT-3'  
 (2) 5'-ACACAACCTGTGTTCACTAG-3',

- (1) 5'-ACGTGGAGTGACGATGCTCTTCCC-3'  
 (2) 5'-GTGGGATTCACTACTTTTCCC-3', and